



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE OCCURRENCE OF PLAGUE IN HABANA AND THE MEASURES ADOPTED FOR ITS CONTROL AND ERADICATION:

By R. H. VON EZDORF, Passed Assistant Surgeon, United States Public Health Service.

The existence of plague in Habana was first confirmed on July 6, in the case of a Spaniard who had taken sick on June 30. Since that date, two more cases developed, one confirmed July 9, and the other on July 22. The last two cases resulted in death. There were therefore three cases with two deaths known to have occurred between July 6 and September 1, 1912. An investigation made by the Cuban sanitary authorities showed that there had occurred one if not two very suspicious cases, also resulting in death, prior to the first case officially confirmed. All the cases were in persons of one neighborhood, the first, however, three blocks distant from the last two.

The Cuban health authorities had suspected the possible existence of plague prior to the occurrence of human cases. The official report of the presence of plague in Porto Rico was received by them on June 20, and on the same day an anonymous communication was received from a resident to the effect that an unusual mortality among rats had occurred in an area covering three blocks which were within a square of the Caballeria wharves. An investigation of this report elicited the information that the mortality among rats had been noticed during the preceding two weeks, and that the unusual mortality had ceased by the time the information reached the sanitary department. Several dead rats were found, but on necropsy were negative as to plague.

The presence of infection can therefore be reasonably dated as early as the first week in June. Between June 24 and July 8, 291 rats were caught within the infected district, and none was found to show plague infection. From July 8 to September 1, 1912, 8,166 rats were necropsied, of which none proved to have plague. Since July 8 a systematic campaign for extermination of rats by a special corps of men, in a zone including the old city of Habana, which allowed a broad margin over the true infected squares, has been in progress. The campaign, of course, was extended to include the wharves, also Casa Blanca and Regla, which are towns across the bay. The quarantine service also took measures for eradicating rats from lighters and coastwise vessels laying alongside of wharves.

The campaign, briefly stated, included inspection of houses and the cleaning up in houses of trash and rubbish, disinfection of infected houses, rat proofing of buildings, regulations for the proper storage of foodstuffs, proper disposal of garbage in tight metal containers, as well as the trapping and placing of poisons for rats.

The rapid control of the infection may be attributed to the early discovery and report of the presence of infection, and the active measures taken by the Sanitary Department in dealing with the known infected area, as already outlined. Other factors contributing to the favorable campaign are that the buildings in Habana are to a great extent rat-proof in structure; also that old sewers where rats usually find refuge did not extend beyond the squares where infection was found. It is noteworthy that an old sewer line, which is very short, extends along the actually known infected blocks, thus

limiting the possible refuge or exodus of rats by such route beyond these blocks.

OUTGOING QUARANTINE.

Passed Asst. Surg. R. H. von Ezdorf arrived at Habana July 9, 1912, with instructions to organize the outgoing quarantine service for the United States and enforce the foreign quarantine regulations, 1910, paragraphs 35-40. Every facility was given the Service representative to familiarize himself with the sanitary conditions regarding the prevalence of plague in all its details by the officials of the Cuban sanitary department.

Accordingly the infected zone was soon defined, and on July 14 was determined as including the confines of the old city of Habana. For the purpose of permitting passenger travel, the bureau authorized that first-class passengers, persons who were nonresidents of this zone for seven days preceding their application for a certificate of health issued the day before the intended sailing could embark for United States ports without detention. All other classes of persons originating in Habana, were required to enter the Tricornia detention camp for a sufficient period of time to cover seven days to the date of arrival at the United States port.

Passengers originating from outside of Habana and suburbs, arriving the same day or day before their intended sailing, were permitted to embark. All such persons, leaving this port for the United States, were individually certified by this office as having presented satisfactory evidence of residence outside of the infected zone, during seven days preceding embarkation.

An official request was made, through the American minister, Mr. Beaupre, of the Cuban Government for the use of Tricornia detention camp for detaining passengers intending to sail for the United States ports, which was promptly granted. Accordingly detention of passengers began July 15, 1912.

On August 10, owing to the evidence of control of plague infection, the infected zone was narrowed to extend from Cuba Street to the bay, and on August 26, owing to the order of the Surgeon General removing all restrictions on passenger traffic, except inspection, the individual certification of passengers was discontinued and all passengers in apparently good health were allowed to embark.

VESSELS AND CARGO.

Steamship agents were seen and advised with regard to the measures that must be taken before bills of health would be issued to vessels sailing for a United States port direct. Circulars setting forth the requirements were issued as follows:

JULY 22, 1912.

The following regulations on account of plague in the port of Habana, for vessels sailing for ports in the United States, must be observed so far as practicable:

Every precaution must be taken to prevent rats, fleas, or other vermin from getting aboard.

Vessels should remain in open bay. Where vessels have lain at a dock, such vessel, when empty, must anchor in open bay and be subjected to fumigation before sailing.

If cargo is to be taken on after such fumigation it must be reported to this office in order that a sanitary guard may be detailed to inspect the cargo and see that the lines from lighters are properly guarded, by use of rat guards and tarring, in order to prevent the possible passing of rats from lighters to the ship.

Vessels will be required to take on cargo only by daylight; after sunset all lighters or any other craft must be away from the vessel, by anchoring or otherwise, and no lines permitted to extend between the vessel and lighter or any other craft.

No freight shall be shipped unless from plague-free districts, and all freight will be subject to inspection by the sanitary guard to observe that it is rat free.

All general freight is required to be taken from a rat-proof wharf unless it can be shown that the character of the freight is not liable to harbor rats.

Vessels sailing for ports in the United States via Cuban ports are subject to fumigation by the Cuban quarantine service. This fumigation will only be certified on the United States bill of health, provided that it is done under supervision of a representative from this office and in accordance with the requirements of the United States Quarantine Regulations.

JULY 24, 1912.

The following additional instructions, in connection with my circular letter of the 22d instant, must be observed:

All vessels for ports in the United States must be fumigated at this port. Such fumigation will be done only when the vessel is in open bay, and should be done when the vessel is empty.

A request from agent, captain, or owner to have such vessel fumigated must be made in ample time, preferably a day or two before the intended sailing.

A list giving the amount of sulphur, pots, and pans required will then be given. This material must be furnished by the vessel.

It will be required that crews or any laborers the vessel desires to employ, shall assist in filling and placing of the pots as may be directed.

Empty vessels are fumigated with 3 pounds of sulphur per 1,000 cubic feet for 6 hours. Vessels with cargo are fumigated with 4 pounds per 1,000 cubic feet for 12 hours.

The time for beginning fumigation, which is counted from the moment all parts of the vessel are closed, should be not later than 11 a. m., in order that the vessel may be inspected and opened up before sunset; otherwise the fumigation will be continued throughout the night.

All vessels fumigated must remain closed until ordered to be opened up in the presence of the inspecting officer; otherwise vessels will be required to undergo a second fumigation.

You are respectfully requested to instruct captains and officers on vessels to assist in the enforcement of these requirements.

No vessels will be fumigated on Sundays.

Instructions were also issued to the sanitary inspectors from this office, as follows:

You are directed to enforce the following regulations regarding cargoes, vessels, and passengers:

Vessels must remain in open bay.

No crew will be allowed to go ashore.

Lighters while alongside of vessels must have their lines freshly tarred for a distance of four feet, or have rat guards attached.

Lighters may remain alongside of vessels only by daylight, to anchor away or leave the vessels at sunset.

Cargo.—Make note regarding the class of cargo, packing, name of wharf from which it was taken.

No freight whatsoever loaded at Caballeria wharf shall be accepted unless a special permit is issued by this office.

General freight will be accepted from such rat-proof wharves as the three Paula wharves, Habana Electric Wharf, or Scovel Wharf.

Sugar and burned fertilizer, in sacks, may be taken from San Jose and Regla Wharves. Ore, asphalt, tobacco in bales, and such other freight as is known not to harbor rats, may be taken from any approved wharves.

Hides are shipped wet, salted down, and have been disinfected, for which a certificate must be shown.

Boxes, barrels, bags, must be whole and in first-class condition and show no evidence of openings by which rats might have entered, or that they have been harbored therein. Bags of sugar will usually show holes where a sample has been taken, but must otherwise be in good condition.

No fruit or vegetables packed in crates or barrels, with holes for ventilation, may be shipped unless covered with close wire netting, not more than one-half inch mesh, so as to be secure against the entrance of rats.

Crated merchandise without any class of packing may be shipped, provided inspection can be made to assure its freedom from rats or any hiding place for rats therein.

Careful examination of all packages or bales in which excelsior, hay, straw, grass, or like packing has been used must be made, and if satisfactory proof of recent packing, within 24 hours of shipment, and all precautions taken in direct handling from shipping point to a rat-proof wharf is not obtainable, shall not be shipped, but ordered to be repacked or subjected to sulphur fumigation, supervised by this office.

Any article or merchandise so packed as to be liable to harbor rats will not be allowed shipment unless repacked or fumigated under the supervision of this office, if practicable.

No passengers are to be allowed to embark until the medical officer of the service is on board.

You are directed to examine all lifeboats for rats or evidences of rats and report on same in your daily report.

You will report on all articles or freight which you have rejected for shipment.

Any irregularities in connection with these instructions, which may be observed by you, should be immediately reported to this office.

You will show this letter of instructions to the captain of the vessel as your authority to enforce the foregoing regulations.

On August 26, 1912, the following supplement to above orders was issued:

Fruit and vegetables in crates, taken on lighters from Paula or Habana Central wharves, may be shipped in crates without wire screening, but careful inspection is enjoined.

For the guidance of officers clearing vessels, a set of instructions with reference to the form of certification to be made on bills of health were formulated. These were approved by the bureau in the following form:

SPECIAL REGULATIONS.

1. (a) Ward Line vessels, New York to Habana and return, are allowed to proceed from Habana without fumigation with the understanding that they are fumigated on arrival at New York. A note is made on bills of health recommending that they be fumigated.

(b) These vessels may go to the Scovel Wharf to unload, and are to be fumigated in open bay before taking on cargo.

(c) Ward Line vessels, New York, Habana, and Mexican ports, and return, to be fumigated while empty at Vera Cruz. These vessels to remain in open bay while in the harbor, to take on and discharge cargo by daylight only, are to be certified as having complied with paragraph 35, United States Quarantine Regulations. The officer will satisfy himself that the fumigation done at the Mexican port has been efficient, otherwise the recommendation will be the same as made under 1 (a), or, if practicable, fumigation will be done here.

2. (a) P. & O. vessels, mail boats, Key West and Habana, steamships *Mascotte* and *Miami*, remain in open bay, discharge cargo by daylight, and may take on tobacco cargo. Fumigation of these vessels will be done once each month, and will be repeated on successive trips, if any rats are found, until freed from rats, when fumigation will be resumed once a month. These vessels have been deratized by seven successive fumigations, between July 9 and 25, 1912.

(b) The steamship *Olivette* must bring a certificate of recent fumigation, enter in the morning, leave in the evening, before sunset of the same day. Vessel will comply in all respects with paragraph 35, United States Quarantine Regulations, while in Habana, recommendation to be made on bill of health that the vessel be fumigated on discharge of cargo.

GENERAL REGULATIONS FOR ALL OTHER VESSELS.

3. All fumigations of vessels will be done in open bay, when the vessel is empty, if possible.

4. Vessels which have lain at a dock in Habana at any time, or which have discharged or taken on cargo at night in open bay, must be fumigated before sailing for a port in the United States, even though precautions have been taken against the ingress of rats. Vessels so fumigated may take on cargo by daylight only, no lighter or any other craft to remain alongside at night.

5. Vessels which have been fumigated two or more times at a United States port, or at this port, during one month, complying in all respects with paragraph 35, United

States Quarantine Regulations, while in this port, namely, remain in open bay, discharge and take on cargo by daylight only, no lighters to remain alongside at night, will be so certified, provided fumigation is done thereafter, when the vessel is empty, at least once every month.

6. Vessels arriving in Habana from the United States or other clean foreign ports, remaining in open bay, discharging cargo by daylight, taking all precautions against ingress of rats from empty lighters, and then proceeding to a port in the United States, direct, or via Cuban ports, will be treated as follows:

(a) If empty: Fumigation in open bay to kill rats, if the vessel is sailing direct for a port in the United States. If sailing via Cuban ports, fumigation as often as may be necessary to insure extermination of rats. Regular line vessels to fumigate once a month.

(b) If with cargo at this port, with part cargo in transit, such operations to be done by daylight; recommendation on bill of health that the vessel be fumigated at the United States port.

7. No vessels to be certified as complying with paragraph 35, United States Quarantine Regulations, unless a sanitary guard or other officer from this office has supervised the operations.

CARGO.

All vessels must take on cargo in open bay, during the daytime.

Lighters, while alongside of vessels, must have their lines freshly tarred for a distance of at least 3 to 4 feet, or have rat guards attached. Lighters must leave vessel at sunset.

General freight will be accepted from such rat-proof wharves as the three Paula wharves, Havana Electric Wharf, or Scovel Wharf.

Sugar and burned fertilizer in sacks may be taken from San Jose and Regla Wharves. Ore, asphalt, tobacco in bales, and such other freight as is known not to harbor rats may be taken from any approved wharves.

No freight is to be taken on from any part of the Caballeria wharves.

Boxes, barrels, and sacks must be whole and in first-class condition and show no evidence of openings by which rats might have entered or harbored.

Careful examination of all packages or bales, in which excelsior, hay, straw, grass, etc., was used must be made; if not satisfactory, repacking or fumigation ordered.

Hides are shipped wet, salted down, and have been disinfected, for which a certificate must be shown.

No fruit or vegetables packed in crates, or barrels with holes for ventilation, may be shipped, unless covered with close wire netting, not more than one-half inch mesh, so as to be secure against the entrance of rats.

Crated merchandise, without any class of packing, may be shipped, provided inspection can be made to assure its freedom from rats, or any hiding place for rats therein.

Any article of merchandise so packed as to be liable to harbor rats will not be allowed shipment, unless repacked or fumigated under the supervision of this office, if practicable.

CREW.

No crew will be allowed to go ashore nor may new crew be taken, except after seven days' detention at Tricornia.

PASSENGERS.

No passengers are to be allowed to embark until the medical officer of the service is on board.

FUMIGATIONS.

As a general rule, empty vessels were fumigated with sulphur dioxide, by burning 3 pounds of sulphur per 1,000 cubic feet and, when with cargo, four pounds per 1,000 cubic feet. All materials for fumigation were supplied by the vessels. The amount of sulphur to be used was rapidly calculated, from gross tonnage, using 3 pounds or 8 pounds, as the case might be, for each 10 tons gross. Not more than 10 pounds of sulphur would be placed in a pot to be burned. Frequently, the fumigation would continue throughout the night,

so that the time often exceeded the time required under the regulations.

SUMMARY OF TRANSACTIONS.

A summary of the transactions from July 6, 1912, when quarantine against the port went into effect, until September 1, 1912, is herewith given:

Bills of health issued.....	205
Vessels inspected and passed.....	157
Members of crews of outgoing vessels inspected.....	7,649
Passengers of outgoing vessels inspected.....	4,677
Vessels fumigated to kill rats.....	85
Vessels fumigated by Cuban authorities under supervision of the United States Public Health Service.....	18
Number of vessels certified as complying with paragraph 35, United States Quarantine Regulations.....	48
Bills of health issued with recommendation fumigation of vessel on arrival at United States port.....	16
Passengers individually certified—approximately.....	2,350
Passengers certified after detention at Tricornia quarantine station:	
For New York.....	148
For Key West.....	133
For New Orleans.....	36